

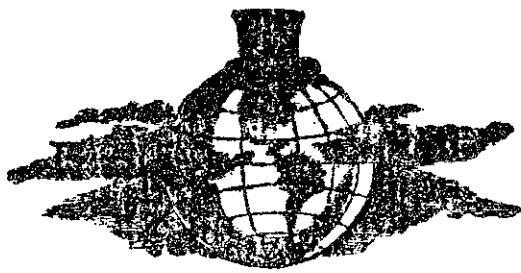
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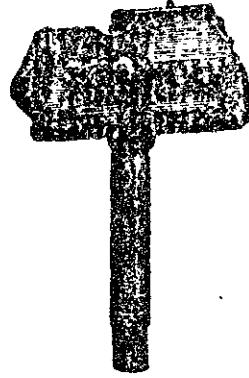
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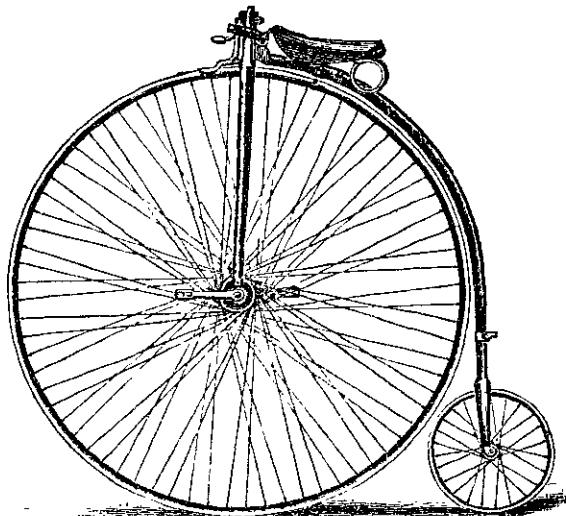
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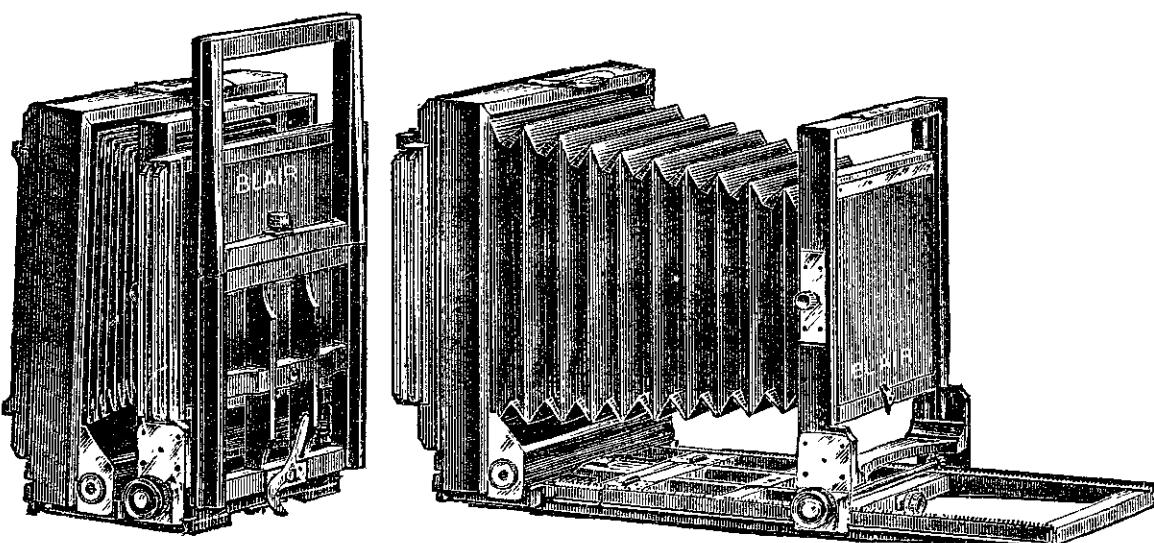
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# The Tech.

VOL. VI.

BOSTON, MAY 26, 1887.

NO. 16.

## THE TECH.

Published on alternate Thursdays, during the school year, by the students of the Massachusetts Institute of Technology.

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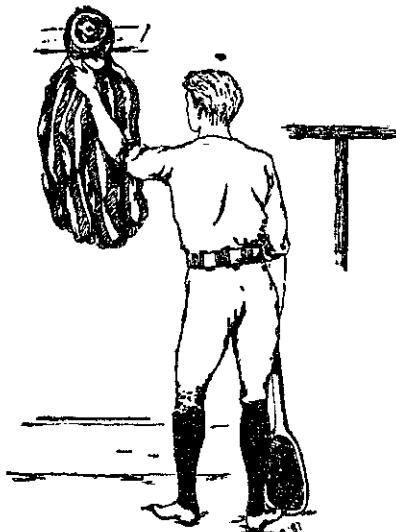
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FRANK WOOD, PRINTER, 352 WASHINGTON STREET, BOSTON.



HE end of the year has come at last, and the final number of this volume of THE TECH now lies before us. The year has been a hard one for THE TECH editors, as the whole board was new to the work; and so, although our work has been pleasant, it is a relief for the editors to be able to put away their pens, look up their tennis rackets, take down their blazers, and go off for a summer of enjoyment; that is, those of us who will return next year will. Those of us who graduate will be hard at work, and let us hope will get "lucrative positions."

On the whole the editors feel well pleased with the result of their work. While there have been a few things about THE TECH with which we have not been entirely satisfied, we feel that

there are many excuses which we might make which should make our failings overlooked.

There has been but little alteration in THE TECH from last year. We have endeavored to have as much local news and as many editorials as possible, as it seemed to us that these were the particular things which were of the greatest interest to all Institute men. It has been our endeavor throughout, never to put any class before the Institute in any of our sayings, and we do not think it will be found that we have "blown the horn" of one class any more than that of another.

As regards our literary work we have not very much to say. It is not to be expected that men as much tied down to professional studies as the Techs are would be able to produce articles of great literary merit, and hence we feel greatly pleased that we have been able to do what we have done. There is no other scientific school in the country which supports a bi-weekly paper, which even attempts literary articles of any sort, so that the Institute leads in this as it does in all its professional work as well. We think that this is a record to be proud of, and we are proud of it, more especially as the work has been almost entirely done by the board of editors alone. And in this connection we would like to thank all those who have assisted us during the year; our few contributors, the members of the Faculty, who have manifested a kind interest in THE TECH, and more especially Professors Atkinson and Norton, who have furnished us with much valuable aid.

A thing which we have spoken of before, we would like to mention again. It has been a great pleasure to the editors of THE TECH to find that the suggestions which we have made, either editorially or otherwise, have been so universally accepted and acted upon. It is the aim of the college paper to voice the college sentiment,

and this we think we have done, if the action of the students is any sign. There are the matters of class colors, the Book Exchange, and last, but not least, the *Quarterly*, a most deserving publication, which we hope will receive the support it deserves, which we take great pride in having originated.

But we think that we have now said enough, and so leave you with a parting word of advice.

SUBSCRIBE TO VOLUME VII.

THE college year just ending may well be remembered as the most successful in the history of the Institute. Everything seems to flourish, except a few schemes which were never on a firm foundation, and the energy and enterprise shown have been remarkable. Although THE TECH has faithfully chronicled every event as it transpired, a brief review may more forcibly bring to mind the many causes which have made this such a "red-letter" year.

Our athletics deserve first mention, as they interest the greatest number; and among the athletics we must first consider foot-ball, as that has become our most popular sport. This year's team can well be proud of their record, and the training they went through reflects well upon their self-denial. The universal interest manifested by the students at large is most encouraging with regard to our future prospects.

The Tennis Association began their career in the fall by a successful tournament, and this spring they have improved their courts and surroundings so as to leave little chance for criticism.

The Athletic Club has certainly surprised every one by its enterprise. The December meeting was the only first meeting at which expenses were paid. At the second meeting, the largest crowd ever collected in the gymnasium witnessed a Tech Tug-of-War Team defeat the pick of Harvard's athletes; and at the spring meeting, the finest track in the vicinity was secured in order to insure success. Five Tech records have been broken during the year.

The action of the club in paying off the large debt of the Foot-Ball Association was very generous, and the dinner was the most enjoyable occasion of the year, at which all classes could participate.

Our Base-Ball Team has a far better record than the last, as only two games have been lost. The Freshman team has been defeating every club of its class in the vicinity, and has even been successful against regular college varsity teams.

Let us turn from this record of triumphs, and glance at the social features of the Tech. The fraternities have larger memberships than before, and are quite active. Every class has a society now, and they are all very prosperous. Some of them have introduced innovations, such as "Ladies Evenings," Receptions, etc., which have been very pleasing. The various local societies are as strong as ever, and productive of good times, as usual. The Freshmen have made an addition to their number, by forming a society with a mysterious name suggestive of their chemical laboratory. As usual, dinners have been as entrancing as in the past. Every class has held largely attended gastronomic entertainments, and every other organization has held an annual spree of the same nature. The Senior Ball drew the Seniors *en masse* from their theses, and the youth and beauty there assembled was bewildering. The afternoon dances seem to be falling out of favor. The theaters secure large representation, and several orderly and peaceful theater parties have been organized.

Regarding our literary fame, THE TECH will say a word for itself elsewhere. "Technique" bore some evidence of being hurried, but was very creditable, nevertheless. The event of the year was the appearance of a new aspirant for favor, the *Technology Quarterly*. This wealth of wisdom and scientific research is well deserving the praise bestowed upon it. This alone would serve to distinguish the present year.

The students have not felt so musically inclined as in the past. The Glee Club has few new members, but acquitted itself in a highly favorable manner; and besides giving the best con-

cert ever the result of Tech. talent, has served to brighten many Institute gatherings. The Orchestra has sunk into deep oblivion, and the Banjo and Guitar Club has joined it in its seclusion.

The Co-operative Society has been a great help to all financially, and, at the advice of THE TECH, has established a Book Exchange, which is destined to become a great institution.

A Photographic Society has been formed, and our amateurs have done very creditable work. The Architects, in order to found a new school of modern art, or procure blue prints at reduced figures, have banded together.

The Freshmen have won fame and glory by the foot-ball game with '89 and by their baseball team.

Last of all, '87 is to have a class-day, which, if expectations are realized, will be the crowning triumph of our Seniors' career.

This is a pretty fair record for a college which is reputed to be a place for grinding, solely. Although the Institute is yet young, it is making a place for itself among the leaders; and the efforts of the students in organizing and improving the affairs which they direct, have had no little effect in bringing about this advance.

THE TECH Boards of Editors and Directors for the year 1887-88 have been organized, as follows:—

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Should a runner wear rubber shoes because he's eraser?—*Life.*

Rhyming Rules.

(Altered from *Pole on Whist.*)

If you the modern marriage game would know,  
Remember, Money makes the mère to go.  
And so, with love and wealth, lead wealth, then love;  
With wealth and grace, wealth once more has the move;  
With love, grace, wit, lead love and then show grace;  
With love, four children, love should first have place;  
With grace, wit, name, you let the name precede;  
In other cases, let her pity plead.  
When you've received some flowers, 'tis often found  
Economy to let them have a second round.  
Whene'er you want a kiss, 'tis seldom wrong  
To lead up to the weak, or 'round the strong.  
Mind well the rules of "Don't"; you'll often need them!  
Speak "English as She's Spoke": You must re-read them.  
Watch also for the parents' time request,  
'Gainst which, when less than ten, you may protest.  
To sit out callers turned up is bad play,  
Unless there is some rival in the way.  
When weak in wit yourself, don't force the talk;  
When short of funds, propose a pleasant walk.  
When you discard, make out that *she* is wrong,—  
For *sometimes* things are put where they belong.

G. K.

The Facts in the Strange Case of Dr. Jekyll and Mr. Hyde.

MY name is Utterson,—Linus Utterson. I am a lawyer in Soho, and have practiced law there for thirty years or more. I am well known to men of my profession, particularly to the Hon. Joseph Undercoot, Enoch Willard, and other equally well known men, to whom I refer you as to my character and integrity as a professional man.

What follows below, the facts and details in the well-known case of Dr. Jekyll and Mr. Hyde, I have duly sworn to before reputable witnesses, and therefore trust that the public will receive them in the good faith in which they are offered.

In view of the fact that my name has appeared in connection with the history of the case already given to the public as *facts*, some of you may say that in now coming forward with still another statement entitled *the facts* of that case, that I am making retraction of the

first account, thereby declaring the first account aforesaid to be false, and so accusing myself of perjury, since the first account was also sworn to.

I deny this; I go still further, and, declare the details as given already to the public to be absolutely correct; that is, they are correct in one sense and wrong in another. The incidents, conversation, in fact all the tragic details, occurred exactly as you know them, the places of incident given are correct, yet, paradoxical as it may seem, you do not know the truth. We were deceived almost from the first; the conclusions drawn from the circumstantial evidence before our eyes were utterly false, and, as such, helped to augment the success of one of the cleverest, the cruelest, and most hellish plots ever conceived by mortal man.

For the benefit of those who have not followed the history of the case, I will sketch it, as briefly as possible, as already given by the Hon. Mr. Stevenson, since, as I have already stated, that history is absolutely correct on the face of it.

Dr. Jekyll and myself were warm friends, having known each other from boyhood. As professional men we had many things of interest in common. We differed much in disposition. He had always been a bright, hearty, sincere fellow, and he carried his happy traits into his older years. I was quieter, and less demonstrative; nevertheless we were firm friends. In my capacity of lawyer I was his legal adviser, and it was to me, as such, that he brought the strange will that proved to be the forerunner of the dark tragedy which it is my sad task to chronicle. The will was holograph, as I, though I took it in charge, refused to lend the least assistance in the making of it. As Mr. Stevenson has said, it provided not only that in case of the decease of Henry Jekyll, M.D., D.C.L., LL.D., F.R.S., *act*, all his possessions were to pass into the hands of his "friend and benefactor, Edward Hyde," but in case of Dr. Jekyll's "disappearance or unexplained absence for any period exceeding three calendar months," the said Edward Hyde should step into said Henry Jekyll's shoes without further delay, and free from any burden or obligation," beyond the payment of a few small

sums to the members of the doctor's household. This document was an eyesore to me. It primarily offended me as a lawyer, and besides I had never seen nor heard of this Hyde. Somehow I formed prejudiced opinions of him from the first, which time and acquaintance only verified.

In vain I pleaded with Jekyll to break that will; in vain I warned him of its danger, for it had occurred to me that possibly this man Hyde, who seemed to possess such strange power over poor Harry Jekyll, might become aware of its contents, or even might have *dictated* it!

But my friend, who unburdened his thoughts and cares to me on all other themes, preserved a silence, stubborn and persistent, in regard to this strange acquaintance, that only increased my apprehension of coming trouble. Of late Harry Jekyll did not seem the same to me. While he possessed all the outward appearance as of old, in many things he was changed. His voice was changed; and he often startled me by gestures and expressions of thought entirely unlike him, and foreign to his nature. I think I noticed these things soon after the deposit of the will. I was much troubled, and I determined to see and speak to this Hyde, and I succeeded. It was in this way: In one of my walks with a friend, Enfield, we came opposite the door in the now celebrated gabled house on the side street leading south from the square in which Dr. Jekyll lived. Pointing to the door, Enfield told me the story of how the man whom he saw run down the child and trample on her, had entered there; and how that man, whose name was Hyde, had given the child's parents a check on *Harry Jekyll!* Thus I found his home, and thus I found Hyde. I haunted the side street day after day before I saw my man. In the meantime I had visited Dr. Lanyon, a mutual friend of Jekyll and myself, to find out more of the man Hyde, but I learned nothing. Lanyon had never heard of him. But at last my search was rewarded. I one day came upon Hyde about to enter the door. Stepping forward, and touching him on the shoulder, I said, "Mr. Hyde, I think?"

He shrank back quickly: "That's my name; What do you want?" I told him my name, and friendship for Jekyll, and that I desired to see Dr. Jekyll, merely to gain time. As he kept his face turned from me, I asked to see it. After some hesitation he showed it, with a defiant look. "Now I shall know you again," I said; "it may be useful." "Yes," he sneered, "'tis well we have met, and, *apropos*, you should have my address," and he gave a number in Soho. "Good God!" I thought, "can he, too, be thinking of the will?" That man was all that Enfield painted him. He was pale and dwarfish; he gave an impression of deformity without any namable malformation; he had borne himself to me with a sort of murderous mixture of timidity and boldness, and he spoke with a husky, whispering, and somewhat broken voice. All these were points against him, but not all these together could explain the hitherto unknown disgust and loathing with which I regarded him. If ever I read Satan's signature on a face, it was on that man's. How it haunted me! Where had I seen it before? for seen it I certainly had. There was something strangely familiar about those features, but I could not place them.

A year passed, in which I learned little else of Hyde except that he enjoyed Jekyll's house as his own; indeed, the servants had strict orders to obey him. It was from Poole, Jekyll's butler, that I heard a strange thing that troubled me as much as it puzzled me.

Although Jekyll and Hyde were often about the house, no one had ever seen them there at the same time or together, and that it was only when Dr. Jekyll was absent that Mr. Hyde appeared, although Dr. Jekyll was often seen going into Hyde's quarters. This only served to strengthen a vague, horrible suspicion that was slowly forming itself in my mind, but my thoughts were directed from it by the murder of Sir Danvers Carew, father of the beautiful girl to whom Harry Jekyll was engaged to be married. It was with feelings, almost of joy that I heard of the identification of the murderer with the man Hyde; and then I was filled with

dismay to find that the weapon used was a heavy stick which I myself had presented to Harry Jekyll.

We searched the rooms of Hyde in vain; he had disappeared utterly, and left no clue.

On the afternoon after the search, I called on Dr. Jekyll. I was conducted down-stairs, and across the court to the building containing the doctor's laboratory. I had never been there before, and I looked about me with much curiosity. The room I entered was large and empty, dusty and deserted, but at the farther end was a pair of stairs, at the head of which was a baize-covered door. Through this I reached Jekyll's cabinet. By the fire sat Jekyll himself, looking very pale and nervous. He did not rise, and I noticed that the voice in which he greeted me sounded unlike his own, but, still, strangely familiar. The interview that followed is best given by Mr Stevenson.

"And now," said Mr. Utterson, as soon as Poole had left them, "have you heard the news?"

The doctor shuddered. "They were crying it in the square," he said; "I heard them."

"One word," said the lawyer; "Carew was my client, but so are you, and I want to know what I am doing. You have not been mad enough to hide this fellow?"

"Utterson, I swear to God!" cried the doctor, "I swear I will never set eyes on him again. I bind my honor to you that I am done with him in this world. It is all at an end. And, indeed, he needs no help; you don't know him as I do; he is safe, quite safe; mark my words, he will never more be heard of."

The lawyer listened gloomily; he did not like his friend's feverish manner. "You seem pretty sure of him," he said, "and for your sake I hope you may be right."

"I am quite sure," replied Jekyll; "I have grounds for certainty that I cannot share with any one. But I want your advice. I have—I have received a letter, and I am at a loss whether I should show it to the police. I should like to leave it in your hands, Utterson; you would judge wisely, I am sure."

"You fear, I suppose, it might lead to his detection," asked the lawyer.

"No," said the other, "I cannot say I care what becomes of Hyde; I am quite done with him. I was thinking of my own character, which this hateful business has rather exposed."

"Let me see the letter," said Utterson.

The letter was written in an odd, upright hand, and signed "Edward Hyde;" and it signified briefly that the writer's benefactor, Dr. Jekyll, need labor under no alarm for his safety, as he had means of escape on which he placed a sure dependence.

"That letter is a forgery," said I to myself at the time. Time ran on; as you know, thousands were offered for reward, but Mr. Hyde had disappeared out of the ken of the police as though he had never existed. Much of his past was unearthed, and all disreputable; tales came out of the man's cruelty, at once so callous and violent, of his vile life, and of the hatred which seemed to have surrounded his career; but of his present whereabouts, not a whisper. From the time he had left the house in Soho, on the morning of the murder, he was simply blotted out.

Then came trouble from a new quarter. The suspicions which were aroused in me, before Carew's murder, were being daily strengthened and almost verified. They haunted me day and night, until at last I could stand it no longer, and I determined to confide in Lanyon. But, to my astonishment and alarm, he refused to hear anything concerning our old and warmest mutual friend, Harry Jekyll; he went further, and declined to continue his friendship. He would give no reason for his conduct, but declared, over and over again, that he had done with poor Harry Jekyll forever. Then, in the midst of my perplexity at this new turn of affairs, Lanyon took to his bed, and in less than a fortnight he was dead.

The night after the funeral, I opened a letter marked, "PRIVATE; for the hands of L. G. Utterson alone, and in case of his pre-decease, to be destroyed unread"; so it was emphatically superscribed. Within, there was another inclosure,

likewise sealed, and marked on the corner as, "Not to be opened till the death or disappearance of Dr. Henry Jekyll." I could not trust my eyes. Yes, here it was disappearance—here again, as in the mad will which I had long ago returned to its author; here again was the idea of a disappearance, and the name of Henry Jekyll bracketed. But in the will, that idea had sprung from the sinister suggestions of the man Hyde; it was set there for a purpose all too plain and horrible.

Written by the hand of Lanyon, what should it mean?

. . . . .

There is not much more to tell as regards what is already known. You all know the tale of that awful "last night," when, after Henry Jekyll had disappeared for over a week, the servants warned us of foul play, and we forced our way into his cabinet, only to find the miserable Hyde, who had so long escaped us, there in the throes of his awful death, but not a vestige of poor Harry Jekyll.

Then, in the midst of our fears and perplexity, I opened Lanyon's letter, containing the remarkable account of how on that stormy midnight, after the murder, Hyde had entered his (Lanyon's) office, and by means of a drug, had *changed himself into Henry Jekyll*, there before the eyes of Dr. Lanyon!

Then came the other still more remarkable inclosure, the letter from Henry Jekyll to Dr. Lanyon, telling of his wonderful discovery, whereby he could change his looks, his heart, his mind, his whole individuality, from the gentle Harry Jekyll to the fiend Hyde, and thence back again to Jekyll. His confession of the cruelties, and the murder of Sir Danvers Carew, while in the form of the fiend Hyde, and his despairing repentance when restored to himself; the story of his change to Hyde *without the aid of the drug*, while he slept, and the using of the last of that drug to restore himself to Jekyll; his fears that at any moment he would become the hunted murderer Hyde, without the means to restore himself, and his last touching farewell, coupled with the determination to destroy

himself. All of these have been told too well by Mr. Stevenson, and I will hasten on to the startling disclosures which so change the entire aspect of the mystery, and lift the shadow from the memory of poor Harry Jekyll.

## CHAPTER II.

To say that these remarkable letters, ending and apparently clearing up this remarkable case, did not deeply impress me, would be untrue. On the contrary, they completely upset me. I was overcome by an overwhelming realizing sense of the horror of it all. For awhile, my little world seemed completely upside-down; the things with which I had been familiar all my life seemed strange and changed, and the most commonplace incidents became clothed with an element amounting almost to uncanniness. I was haunted with a vague, intangible fear, like that which I experienced as a child when some unusually ghostly tale had been told. I cannot begin to tell the mental suffering I underwent during those days. In course of time it wore off, however, and I soon began to take a more sensible view of the situation. I remembered my old fears and suspicions, and, besides, I was inclined to be skeptical even in the face of the evidence of my own eyes. I have always been a practical man, with little or no sentiment, and it now stood me in good stead. I could not bring myself to believe in the conclusions which were arrived at. It did not seem possible for Dr. Jekyll, or any other man, to accomplish what Jekyll claimed to have accomplished. It was contrary to all nature; it was simply defying the laws of God's universe, and I could not believe in it. I was filled with a fast growing conviction that there was something *more*, something which had escaped us, and, moreover, that that "something" was the key to the situation. My old suspicions returned with renewed force, and I determined to satisfy myself once for all. I believed that in the past of the creature Hyde lay enlightenment, and diligently, yet secretly, I set to work to find it.

I visited the office in Soho, but found an office, and nothing more. There were chairs, a table or two, and some old periodicals — nothing else. Then I turned my attention to Jekyll's home and Hyde's quarters, which had been closed since the death of these men. For days and weeks my search was unavailing, and I had about given up, when finally one afternoon, after I had spent most of the day in the cabinet where Hyde died, I entered the handsome room, that was Hyde's, to rest. I leaned carelessly against the wall near a mirror, for a moment, when all at once I felt a rush of cold air, and turning with a nervous start I saw the mirror slowly swing inward, disclosing a dark passage floored with marble slabs. I was startled, and it was several moments before I gained courage to take a candle and explore the passage. It was like entering an ice-house, and I had scarcely taken three steps before I was suddenly thrown violently forward on my face, extinguishing the light and leaving me in total darkness. I scrambled to my feet thoroughly frightened, and rushed back into the room, where I stood panting, awaiting the danger I was sure would follow. But none came, and I picked up courage, and re-lighting the candle, cautiously entered the passage. Then I discovered the cause of my fall. It was simple enough. One of the diamond-shaped slabs in the flooring was loose; I stepped upon it, tipped it, and consequently was instantly tripped up. How I laughed at my superstitious fears of a moment before, and what a hollow, mocking sound the marble walls sent back. Stooping, I was about to replace the slab, when I noticed loose earth, upon which was scattered bits of torn paper, still fresh and white. Scraping away the loose dirt with my fingers I soon laid bare a piece of cloth wet and clammy, and I became aware of a faint stench. In less time than I can tell it I was out of the house, and making my way to the home of Poole, Jekyll's old butler. Quickly telling him of my discovery, we were soon back again with a shovel and hoe.

I cannot go into the details of that next hour. My worst fears were realized. There, by the

pale, flickering light of the candle, the hoe and shovel laid bare before us a sight, the horrible ghastliness of which will haunt me to my dying day.

That night, Poole and I, in company with an undertaker, laid away to its rest in a quiet spot in the cemetery, all that remained mortal of Harry Jekyll. On the dead man's breast I found the manuscript that follows.

#### CONFESSiON OF EDWARD HYDE.

My name is Edward Gorman Hyde. I was born in New York, in 1840. I came of a good family, and am a graduate of Columbia College. My folks were wealthy and influential; I had plenty of pocket-money, and consequently was a wild youth. Owing to financial losses, followed shortly by the death of my parents, I was compelled to seek my own livelihood while yet a young man. I had always had a passion for the stage, and even as a boy had displayed much talent in that direction; naturally I drifted into the profession, and with small beginnings, in the course of a few years, I made a name for myself in character portrayal. But my old vices of the college days clung to me, and with returning prosperity I gradually drifted into the old ruts. What with hard work and dissipation I soon wrecked my nervous system, so much so that I could not go through my parts with the old vim. Then it was that I took the step that wrecked my life. I resorted to opium to quiet my nerves and help me through with my stage-work. Night after night I infused new temporary life into my veins with the aid of the cursed drug. As time went on I found myself taking it at frequenter intervals, and finally if I neglected to make use of the opium less than three or four times a day, I suffered untold agonies. The end is only too evident. Gradually my powers slipped away from me; I drifted from one stage to another, each time a little lower; my little hoard of money saved from my brilliant days was soon gone, until, one never-to-be-forgotten summer, I found myself without friends, money, or home. I became a miserable, wan-

dering wreck of humanity, sometimes an object of pity, more often of kicks and contempt. Then, when it seemed that life was scarcely worth the living, and I almost longed for death (would to God it had come), help came in the form of Dr. Jekyll. It was in this way: I had been tramping around the upper part of the State of New York. Toward the close of a hot summer day, I entered a small village not far from New York City. I solicited a supper, and then wandered about, in an aimless sort of way, till, long after dark, I found myself near the tavern, and I determined to ask for a lodging for the night. There was a group of men on the porch, and I went around the side to the back. There was a light on the ground-floor, and as I passed the open window I thought I heard a deep groan, as of some one in pain. Stepping to the window, I looked in. There on the floor lay a man, writhing in awful agony. His eyes seemed about to burst from their sockets, and his tongue, swollen and purple, lolled out of his mouth, while his bloodless fingers spasmodically grasped at the carpet. Jumping into the room, I knelt by his side and tried to quiet him. It seemed to me that he was dying, but I was powerless to help him. I was about to leave him and go in search of help, when I noticed that he tried to reach a bottle standing near on the carpet. Failing, his eyes sought mine; I understood, and it was but the work of a moment to get the bottle and force some of its contents down his throat. The effect was instantaneous; his muscles relaxed their rigor, and his eyes closed; he lay perfectly still. I feared he was dead, but placing my hand on his heart, I found it still beating.

After awhile he came out of the faint, and in less than an hour was sitting up in a chair telling me the cause of his trouble. He gave me the name Dr. Jekyll, and said that he was an English doctor, traveling. Before the night was over I knew his secret, and he knew my history. He believed he had found the drug which would change a man into another being. He had come to this quiet spot to make a first trial. Then if death resulted no one would ever know

the cause. As you know it failed, and I came upon the scene in time to save his life. He was very grateful to me for this, and finally persuaded me to go with him to London, where he said he would give me a home, and cure me of my habit. The thing was tempting, and I accepted. Arriving here I was given pleasant quarters, and established as a member of the household.

I soon began to mend under the doctor's care, and felt something like my old self; I regained my old strength. Dr. Jekyll insisted, for some reason unknown to me, that we should not be seen together, and for that reason I never appeared in his part of the house unless he was absent. We had many talks, however, in his cabinet or in my rooms. During one of these talks he spoke of his great discovery, which he expected to perfect soon, and that some day I might expect to see him as somebody else. And in regard to this change, he said he had left a will with one Utterson, by which in case of his supposed death or disappearance his money was to go to me, and, furthermore, I was to deliver it to *him* in his *new form!* As I had no faith in his hopes, I agreed to all of this, and soon forgot it. With returning strength I began to long for my old life as an actor, and I found myself trying to imitate Dr. Jekyll, as a character. I entered into it as my one amusement, and soon became so proficient that I could imitate Jekyll in manners, expression, carriage, even in voice, to perfection. I knew this, for I tried it on the servants with unexpected success. However, I allowed Dr. Jekyll to gain no knowledge of this new acquirement.

About this time a new and peculiar phase of my illness presented itself: I found that at times I was afflicted with a deep craving for opium stimulants, and at such times there was a change in my nature; I became passionate and irritable; my temper was ungovernable. Often while on the streets these spells came over me, and I know that I was guilty of cruel and heartless acts. It was in one of these tantrums that I committed the worst crime a man can. For the first time since I knew him, Dr. Jekyll had taken a walk with me. We met Sir Danvers

Carew, and I was introduced. The doctor being called away, I escorted Sir Danvers toward his home. We got into a warm discussion, and at the height of it I felt one of these spells coming on; I was unable to keep my temper, and almost before I realized what I was doing, I had sprung upon the old man and felled him to the earth. Oh! the agony of shame and fear through which I passed when I realized it all! That night I told Jekyll. Horrified as he was, he determined to help me. After getting me to write a short note to himself, to the effect that I had gone forever, he hid me in an old cellar under the court. There food was handed to me for about two days, but the third night it stopped, and I quietly stole out and to my quarters. To reach them, it was necessary to pass through Jekyll's cabinet. As I entered the room, candle in hand, I stumbled over a body. It was Jekyll's. Glancing around, I saw papers of salts and vials on the tables, and I knew at once that Jekyll had again been trying his awful experiment. I found his heart still beating, and remembering a cabinet had once been pointed out to me as containing the antidote of the powerful drug, I crossed to it and took out the vial. A paper there arrested my attention, and I found it to be Jekyll's will. I read it. By it he gave his property to me. Why, he had already told me. But it was only in trust. Placing the vial on the table, I seated myself near the body. Open, near me, was a case of surgical instruments, among which was a long, keen scalpel. Taking this from its cushion, I opened it, and advancing to the body, I knelt beside it. Just then Jekyll gave a deep sigh, and opening his eyes, he raised himself on his elbow. Grasping him by the throat I forced him back, at the same time plunging the knife into his side. With a shriek he tore himself free, and half ran, half crawled, to the door. But I was there before him. Just as he tottered against me I ran the blade into his throat, and he fell without a cry. I buried the body beneath the passage-way, and washed the floor and door free from blood. Now that the deed was done, and I had two murders on my hands instead of one, I was sorely troubled

as to what to do. If I ran for it, I ran the risk of capture for the murder of Carew. If I staid here, as soon as Jekyll was missed, they would search, and find me. The case seemed desperate. There was only one way left,—Jekyll must not be missed: it was absolutely necessary for my safety. How I thanked the whim that caused me to study him. But could I do it? that was the question.

I determined upon a desperate trial. I formed a plan, whereby I appeared one night before Dr. Lanyon, a friend of Jekyll's. There I pretended to change myself, by a drug, to Jekyll. It was a remarkable piece of acting, to judge from its success,—its effect on the horrified Lanyon. I could have hugged myself for joy. At least for a time I was *safe*. After his recovery from the seeming horror of it all, Lanyon wanted the history of my discovery. As I knew of none to tell him at the time, I promised to write it, providing he would not make it public until after my (as Jekyll) death. He promised, and so, disguising my hand as well as I could, and imitating that of Jekyll, I wrote a most remarkable letter, which I think effectually hoodwinked Dr. Lanyon. All this was a terrible strain upon me, and without the restraining hand of Jekyll, I returned once more to the opium. This was two weeks ago. Since then my change has been frightfully swift. My will-power, my strength, have deserted me in a night, as it were, just as they did years ago in America. I have lost all power to act out the miserable farce of my life. I cannot assume the upright carriage of Jekyll. I cannot keep the muscles of my face under control. God knows I have tried hard enough. With my nerves quieted with opium I have stood before my glass, and bravely, desperately tried to assume the form of that man, but in vain; the cursed opium has done its deadly work, and I am a doomed man.

It is a week now since I last appeared in the dining-room as Jekyll, and at any moment my doom may come. Here, in the last lonely hours of my life, some flickering spark of the man I once was, prompts me to make this slight amends to the memory of the man who was my

benefactor, and last friend, and, although I killed him, my best friend. Did I say *last friend*? No; that little vial on the table is my last friend.

### The City of Sauk.

IN the August before the last presidential election, the political pot was seething and hissing in Washington Territory vigorously as elsewhere, when my uncle and I undertook a trip up the Skagit River, ostensibly for pleasure, but in reality for political reasons. The Skagit is a swift stream, rising in the Cascade Mountains, and watering a fertile, sparsely populated country, finally emptying into Puget Sound. Its waters are very light colored but not muddy—a peculiarity due to its passing through a limestone district.

The first two days of the journey were made on horseback, by a rough trail that led us along the river through a dense growth of willow and alder. The trail ended at a small farmhouse connected with a logging-camp, so here we turned our horses into the pasture, and made the journey beyond by canoe.

The Indian we hired for the trip proved to be an expert at his business and an interesting companion besides, for he told us startling tales of war and bloodshed that occurred before the advent of the whites, and quaint Indian legends. Our craft was a cedar dugout of very fair size, but our pilot drove it swiftly along against the current by means of a long pole. A paddle was rarely used in going up stream, except in crossing from one shore to the other.

We stopped quite often along the river at farmhouses or logging-camps, to talk politics, and occasionally to eat; and so several days passed before we ascended the river as far as our objective point. At this last farmhouse we learned of a mountain, Sauk by name, which was but a few miles farther up the river, and which, we were told, would well repay the trouble of ascending it. The farmer agreed to accompany us, so off we started for the promised land.

This unexpected part of the journey proved to be very pleasant, for the river was more beautiful than at any place lower down. One particular feature was the fine rapids extending for a quarter of a mile in a miniature cañon. In the eddies below a dozen aborigines were fishing for salmon with nets.

A turn in the river brought us directly facing old Sauk, which we readily recognized, with its patches of snow on the northern slope; we were at a loss, however, to see the city which we were told lay at its base. One little shanty was the only sign of human habitation that could be seen, but this, with its one occupant, proved to constitute the city. A fire that had been set to clear off some land, was blazing briskly half a mile below the house; but as we were hungry, we hastened on without heeding it.

Old Graves, a retired wood-chopper, and mayor of the city, greeted us kindly, and extended us the greatest hospitality.

We had all retired for the night, when the Indian called us up, saying a fire was raging near by. He had heard the crackling and smelt the smoke, and suspecting the cause, had looked out to see the reason. The fire that had been burning farther down the river, had been driven on by the breeze, and had rapidly marched up the valley. Already it was almost upon the house, so we lost no time in defending the property. Gallons upon gallons of water were carried from the river and dashed on the fire, but seemingly in vain. The heat was intense, and the perspiration flowed from some of us as it had never done before. The roof of the shanty took fire from flying sparks; and while we were subduing that, the dried grass burned all around the house, setting fire to one of the corners of the building. It seemed then, as if human strength was powerless; but we worked on as if for life, and finally quenched the flames before great damage resulted to the house. It was well on to midnight before all danger was past, and we sank to rest again.

The morning was well advanced before the party was ready to begin the ascent of the mountain. The way was indicated by a trail

leading through a forest of Douglas firs, which supplied the city with wood. Passing through this we came to the steep ascent, and then we wished for horses. Frequent knolls afforded agreeable resting-places, where we could lie down and view the scenery, at the same time enjoying, for the stomach's sake, whole bunches of purple elderberries. The scenery was exceedingly beautiful, and cannot be realized by one who has not seen the like. Mt. Baker, capped with eternal snow, lay to the north, with broad green ridges to right and left. Directly below us the Skagit flowed on, appearing in the distance like a winding silver thread. On the west the sound could be faintly seen, with columns of smoke rising from the numberless saw-mills upon its shores. To the west lay the cañon of the upper Skagit, where but a few years before gold was found, and where people flocked by hundreds. The precious metal was scarce, however, and the fever had subsided entirely at the time of our trip. Near by the cañon, in the neighboring cliffs, could be seen a huge bed of mineral paint, much used by the Indians for painting their faces.

Our upward journey led us past numerous ledges of minerals. With our scanty knowledge of geology we were able to identify limestone and copper-bearing rock. Outcrops of coal were visible in some places along the banks of the torrents, while we obtained some very nice specimens of quartz crystals. In the shale connected with the coal we found prints of ferns, which were extremely well defined.

We reached the summit of Sauk about the middle of the afternoon, and as we climbed up the rocks to the level plateau, two deer went scampering away before us. As we appeared in full sight, numerous flocks of grouse noisily flew up into a few trees that stood on the southern exposure, while a little black bear jumped up from behind a boulder and rushed over the farther side of the summit as if shot from a cannon. The immediate scene was exquisite, and well repaid us for the trouble of climbing. The summit was a table, about a third of a mile in diameter, which sloped from all sides toward

the center to form the basin of a small lake, clear as crystal, and refreshingly cold. The lake was fed by melting snow, and any surplus escaped as a small stream, dashing into spray in its headlong journey over the boulders. The sloping banks were thickly carpeted with grass, green as in springtime by reason of the lateness of its resurrection.

The descent was but a short task, and the shanty was reached as the sun disappeared behind the western hills. The exertions of the past twenty-four hours made soporific Morpheus a welcome guest; but with sunrise we were once again upon the Skagit, lazily floating downward with its silver tide.

G.

#### Fire Drill on the "Wæsland."

MOST people know that on all naval vessels an emergency drill, or something corresponding thereto, is a part of the regular routine, enforced by strict regulations of the naval department, practiced with fully as much zeal, if not quite as frequently, as gun-drill, and altogether not the least important or interesting feature of life at sea. But many are not aware that a similar drill is required, more or less frequently, by those great steamship companies whose vessels now do about all our maritime passenger business, and on whose steamers the "fire-drill," as it is called, although not executed with the clock-work regularity and precision attainable only under strict military discipline, constitutes a standing source of amusement to passengers, and recreation to the crew, besides being of undoubted value in case of disaster. On all steamers of the Red Star line, which connects our modern Knickerbockers of New York with their ancient progenitors of the Netherlands, via Antwerp, placards are hung up "calling the attention" of the captain to ten rules immediately following, which, in substance, require an emergency drill to take place at least once during each passage, and proceed to give an outline of the exercises required. Below, is a scheme giving the duties and proper boat of

each of the petty officers and "supes," — purser, stewards, cooks, butcher, baker, and candle-stick-maker (the last-named individual being left out by some strange mistake, as candles furnish all the stateroom illumination on board ship), with the names of the incumbents written in blanks left for the purpose. These charts are renewed before each trip, so that changes in the *personnel* of the crew are promptly dealt with.

To be most effective, a fire-drill should be unexpected; but this happy end cannot readily be attained on a passenger steamer. On a man-o-war, if the captain's late kidneys and claret "put a stopper" on his midnight slumbers, he can arise, don his apparel at his leisure, saunter out on deck, and secure abundant company for his misery by a single rattling alarm, which brings up all his fellow-navigators yawning and cursing, to swash around with a cold hose in their hands, and most likely none at all on their feet, until the demon of insomnia is appeased. Then he retires with the calm complacency of an energetic and vigilant officer, who has done his duty by his crew and the department, and expects both to appreciate it.

But a transportation line which indulged in such playful little midnight demonstrations, would soon find itself passengerless. As it is, seasick lady-passengers make a vigorous protest if they have not been duly warned beforehand, and both well and sick, in three different departments,—first cabin, second cabin, and steerage,—expect their regular three meals at their respective nine different hours, come what may, so that practically the times at which nearly the whole ship's company may be summoned from their different occupations and plunged into riotous confusion, becomes somewhat limited. Consequently, it becomes customary to have the drill on Sundays, and the exact time will often be pretty well known among the crew, as well as among the more wide-awake passengers.

On the present occasion, all hands, fore and aft, seemed quite prepared for the event; and when the dignified little ship's bell, which thus far on the voyage had never sounded except the

proper amount of beats at the hours and half hours, began clanging away like mad, expectant groups all over the ship scattered in a twinkling, the few passengers gathering on the hatches, while the sailors and mob of employés clustered in an uncertain sort of way in the waist, mostly on the port side of the ship's top-hamper. Two lengths of three-inch hose mysteriously appeared from below,—one nearly half as long as the ship, the other considerably longer, and having a regular jet at the end,—and were secured on to supply pipes slightly projecting from the extreme after sides of the top hamper. Meanwhile the steward and scullion mob on the port side of the ship, where the shorter hose was attached, were sent aft to the stern wheel-house for buckets, which they brought with more or less celerity, according to their individual inclinations, while the longer hose was supported by the crew proper, which consisted of only about a dozen men.

After delay enough to give the hypothetical fire a fair start, word was got to the engineer below having charge of the steam-pumps, and the two hose began to eject water in considerable volume, but without much force. This was not of any consequence in the case of the short hose, which was only used for filling buckets, and with the longer, the use of the jet made the throw equal to some ten or twelve feet, sufficient for ship-board purposes. The port hose was directed successively into the immense lot of buckets assembled in the waist, and as fast as a bucket was filled, its contents were pitched overboard, or into the lee scuppers, by a single individual, who seemed to be doing most of the work in that quarter. On the starboard side, the stalwart tars played away vindictively at the briny deep. The purser, a spruce young fellow, with an uncommonly frisky little mustache, stood pensively at the head of the second-cabin stairs, with the ship's mails in a tin case at his side; and the other officers of sufficient dignity to escape the deck-washing business, and with no duties of their own but to "comfort and control the passengers," or some similar sinecure, also stood around and smiled benignantly. The

chief cook, one of the few dignitaries whose business it was to stay at their posts, gazed sardonically from his galley as if he wouldn't mind going down with the ship in the least; but the steerage passengers seemed interested, and quite prepared to take a hand in the show, the women especially appearing ready to be saved on the slightest provocation.

The little bell having had a rest, now struck two bells repeatedly, and the whole population piled aft with all the buckets they could lay hands on, swashing the bucket-hose sideways *à la* Gatling-gun, to clear the way and give the steerage passengers a sly wetting. There were many queer specimens in this grand turn-out of the steamer's people. The butcher, a short, stout, jolly Dutchman, with his tow hair covered by a low, dirty, blue jockey cap, offered an amusing contrast to "Yawcoop," our dude waiter in the second cabin, whose frantic efforts to do his duty by the buckets without rumpling his white tie or getting his feet wet, excited general derision. A number of the hands wore wooden shoes, which made a prodigious racket as they trotted along the deck.

Arriving aft, the sailors spouted tranquilly over the starboard rails, while the crowd to leeward, on getting to the end of their shorter "rope," fell gradually into a single line, which, by the energetic efforts of the captain, who seemed to be the only man on board having exact idea how the thing should be done, was soon transformed to a double one. Down one side the buckets of water were passed from the hose, the small amount of water left in them at the end emptied into the scuppers, and the empty buckets returned via the other side. This practice was to enable the men to use other and nearer supply-cocks instead of those fed by the steam-pumps, in case the latter were for any reason temporarily unavailable, as might often happen with a fire occurring in some remote region below. It was superintended by the captain in person, around whom the bedroom steward, whose duty as captain's messenger it was to keep near him, while at the same time obliged by etiquette to keep behind and not too close to

him, oscillated like a small and erratic bob to a large, but jerky kite.

A single bell, repeated at short intervals, sent the department to the bows to repeat the watering of marine vegetation ; three bells brought them again amidships, when, the ship being now in a presumably sinking condition, unlimited steam-whistles sent the men to the boats. In smooth weather these forlorn hopes are partially lowered, with part of their respective crews and any passengers who may yearn for a cold salt-water bath without its concomitant of a tip to the barber ; but on the present occasion rough weather prohibited exercise at the davits, and only the roll of each boat's crew was called under the boat.

This closed the drill, which, although performed with more boisterous good-humor (and in some cases, condescending slowness) than the "snap" and perfect understanding desirable, was evidently useful in giving the men an idea of what they might some time be called on to do in grim earnest, and was, perhaps, after all, the best obtainable under the circumstances.

L.

PARIS, April 22d.

Concluding remarks to a course of lectures on Constitutional History given to the Senior Mechanical Engineers.

Here our lessons end, gentlemen, though if I had another term before me — indeed, if I had many terms — I should find no sort of difficulty for want of material to fill them ; for the subject of political science is as wide as history, as deep as philosophy itself. You must consider that you have had a glimpse of it only ; but I hope you will not hereafter be sorry that you were obliged, or that you elected, to attend this course. For while from one point of view a mere course of lectures is a most unsatisfactory way of dealing with an important subject, we must not, on the other hand, underrate their possible value under circumstances which leave no other alternative. An acorn is a very insignificant affair, — no bigger than a lady's thimble, — but it may make a great difference whether you put it into the ground, or into your pocket. Even if you put it into the ground, it may

never come up, — it may be as seed sown by the wayside, or among thorns and stony places ; but if it falls into good ground it will grow into an oak ; and sturdy as an oak should be every good citizen. I should be glad to think that anything I may have said shall have had the effect of making you feel more deeply the importance of your political duties, and of giving you any light on the right method of fulfilling them. You have given me all that it was permitted me to require, — a most commendable regularity of attendance ; and, as the written examinations that have accompanied every lecture have shown, your attendance has not been that of the body only. And I will say on my own part, that though my lectures might be a great deal better, yet you have been listening to no mere hasty performances, but to the results of a great deal of reading spread over a good many years. I have designedly given them a wide scope, for I wanted above all things to make them suggestive. That seems to be the true function of lectures, to stimulate their hearers to further study, and to furnish guidance in the shape of references and general views. As regards references, I am sure you will find your note-books helpful, if you should see fit in times of greater leisure to follow up the study, though every year adds to the list of indispensable new books, and renders some of the old books antiquated. For there is some truth in old Freeman's saying, that "history is only past politics, politics only present history," though it is by no means the whole truth. And just as in Prof. Sedgwick's laboratory all branches of Natural History are connected and comprehended in one general Science of Biology, the Science of Life, so all these historical studies, History, Politics, Political Economy, Jurisprudence, are more and more closely united as branches of one comprehensive study for which we have at present no better name than Sociology. I must, however, add that no sociological scheme has yet been propounded which seems to me destined to stand, least of all that of Mr. Herbert Spencer. Whether you will ever take an interest in such wide surveys may depend upon your individual tastes and opportunities ; but one thing is certain — that in this country, where every man is responsible for his vote and for the political influence he cannot help exerting, no one can excuse himself from so much labor and study as is needful to the acquirement of a sound knowledge of the form of government under which

he lives, and of a clear understanding of the great political issues of the day. He cannot complain of want of material, for it is being furnished in only too great abundance. Let me mention in illustration, two series of volumes now in course of publication in this city. The Lives of American Statesmen, and The Histories of the American Commonwealths. Then there is a vast improvement in the quality of American journals and periodicals. I do not mean the mere party organs or the mere picture magazines, but the periodicals that aim at being representatives of American thought on serious subjects.

It seems to me that every man who has had opportunities for mental discipline such as you have enjoyed has a weighty responsibility, not merely to his profession, to uphold its credit by good work, but to the community, to show himself an enlightened citizen. It is very much to have learned *how to study*. That power which you have acquired in the pursuit of science you are bound to apply to other fields. There was a discussion not long ago in one of the English magazines, in which several eminent writers, and one eminent statesman, Mr. Gladstone, took a part, as to whether the judgment formed on great political questions by the educated and privileged classes, or by the mass of the people, was the more likely to be correct. The question has more significance in England, where the distinction of classes is so much greater, than it can have here; but the conclusion seemed to be, that on great political and social questions, such as affect the whole community, the judgment of the masses was likely to be sounder than the judgment of any class, provided only that it was enlightened by discussion, not the hasty result of blind prejudice and ignorance. It is this that constitutes the safety of democratic institutions, but note the consequence. The degree of enlightenment of public opinion is exactly in the ratio of the number of trained minds who become disinterested and impartial students of political questions. If ignorance and prejudice do prevail, and the arts of the knave and the demagogue, it is because educated men are false to their political duty. I trust the training you have acquired here will make you successful in life, and prove the best of all capitals; but I hope you will also hold it as a trust for the commonwealth, and that wherever you are, you will prove yourselves better citizens for having given some attention here to the science of politics, and some thought to the great subject of history.

W. P. A.

### North-Western Alumni Association.

*To the Editor of THE TECH:—*

You must pardon me for not sending this communication before, but I have been so busy keeping account of the runs scored by opposing teams against Chicago, that I have had no time for anything else.

This letter is directed more especially to the class of '87 than any one else, but '88, '89, and '90 can read it, and perhaps after the "annuals" they may profit by some of its contents.

'87 is about to sever her connection with the Institute. (This is awful old, but I have got to use some expression. I'll almost bet a hat THE TECH writes an editorial in No. 16 about '87 "severing her connection.") Being an ex-member of '87, I take a great interest in her future success. I want her to have the best of everything; and now that she is about to branch out, and look over the field for the best working-ground for her future toil, I thought it would be a good scheme to write, and put in a claim for a part of the class anyhow, if the whole is not struck by my inducements.

What place can there be in the United States better for the young men than the wide WEST? Remember Horace Greeley's advice. (I think it was Horace who got that horse off.) What better place in all the West than CHICAGO! Take the courses right through.

I. There are more saloons here to the square inch than in any city I ever saw, and the latest in regard to the Civils comes from Springtown, Mass. — a noted Tech. man coining money by designing saloon bars. Besides, this is the biggest railroad center in the United States.

II. Lots of the mechanics here get \$3.33 per week! We have shops here by the wholesale, too.

III. The best chance of your life — cleaning the streets! It is a mine with no bottom.

IV. Say the word, and I'll fire the town again to give you an opening.

V. This is a great pork town, and beans go well with pork. Wanted: The best method for manufacturing oleo. I'll bet on our chemists.

VI. A gas syndicate has just bought up the town, and owns all our light except the sun. The babies cry for electricity. This is a chance!

VII A. There is not much chance for you. The

grass don't grow in our streets. We've plenty of rocks, if that will be an inducement.

VII. B. The name of Chicago's biggest institution in your line is "Rush Medical College." '87 was always pretty *rapid*, and this ought to catch you.

VIII. Come on, Hadaway, and we will try and fix you out.

IX. Come over here, where nobody can hear me. "I am making \$3.37 a week and board, and only work from 9 to 3." This is a dead straight deal, and I know it will fetch all four of you.

Now, after having given such inducements to each course individually, I offer as the greatest incentive to your coming here,—membership in the great, the only North-Western Association of the Massachusetts Institute of Technology. (I hope you won't have to change the style of type, Mr. Warren.)

Our membership is continually increasing. Examinations at the Institute, which you all hate, we enjoy; for very often it brings us another \$2.00. As fast as the Institute drops them we take them up.

Our annual meeting and banquet takes place during the second week of September. We have not decided on the day yet, but if any one who is now at the Tech., and who expects to be in this vicinity about that time, will send his name, he will be sure to get a place. We want to have some young blood there, too, to mingle with the old and liven times. We want a "rouser." I'll make special arrangements with the police in advance, so they won't take it for an anarchist meeting.

We hope to have some of our professors with us, and President Walker, if possible. At least, a cordial invitation is extended to all of them, and to every one who has ever had anything to do with the Tech., to be present at this meeting. We will even take men who have studied special English and Mechanical Drawing in order to play in our famous (?) athletic teams. We will take fellows who haven't studied at all, and who accepted "lucrative positions" at the "semmies," or even before. We want you all, so come and join us. *Don't forget this during the summer! Pin it in your hat — second week in September!*

Yours as ever,

SOLOMON STURGIS, Sec.

*N. W. Nat'l Bk.*

P. S. — I forgot to mention that the price of the plate would be about one week's wages.

### Titles of Theses.

The following are the names of the candidates for degrees, together with the titles of their theses:—

#### CANDIDATES FOR DEGREE OF M.S.

ARTHUR AMOS NOYES, S.B., Newburyport, Mass.

Preparation of the Butines, and the Action of Heat on Isobutylene.

#### CANDIDATES FOR DEGREE OF B.S.

GEORGE ARTHUR ARMINGTON, Weymouth, Mass.

An Investigation of the Radial Valve Gears.

SIDNEY ROLAND BARTLETT, Boston, Mass.

A Biological Examination of the Water Supply of Newton, Mass.

CHARLES ARTHUR BARTON, Waltham, Mass.

An Experimental Study of the Surface Condenser.

WILLIAM BISBEE BLAKE, Newburyport, Mass.

A Review of the New York City Water Supply, and Quaker Bridge Dam.

WALTER CLAUDIO BRACE, Leavenworth, Kan.

Amalgamation, Concentration, and Smelting of a Central City (Col.) Gold Ore.

HENRY BOIES BRAINERD, Montreal, P. Q.

An Analysis of the Expenditures of the City of Boston between the Years 1866 and 1886.

THOMAS DWIGHT BRAINERD, Montreal, P. Q.

The Law of Suicides.

HENRY FLETCHER BRYANT, Bryantville, Mass.

A Sewerage System for Brockton, Mass.

FRANK GELETTE BURGESS, Boston, Mass.

Location and Estimates for a Narrow Gauge Railway from Davis Mine to Charlemont, Mass. (With F. Thompson.)

JULIAN ABBOT CAMERON, Westford, Mass.

A Design for the Arrangement of the Machinery in a Worsted Mill.

FRANK DELBERT CARNEY, Thomaston, Me.

The Treatment of a Sulphuretted Copper Ore from the Davis Mine, Mass.

MORTON EDDY COBB, Newton, Mass.

The Co-efficient of Friction of Leather Belting upon Different Kinds of Pulley Surfaces.

WINTHROP COLE, Newton, Mass.

An Experimental Investigation of the Flow of Steam through a Tube.

HENRY JOHN CONANT, Watertown, Mass.

The Steam-Engine Indicator. A Theoretical and Experimental Study of Some of its Errors.

HELEN COOLEY, Little Britain, N. Y.

A Comparison of Methods of Testing Indigo.

RALPH EDGAR CURTIS, Newburyport, Mass.

The Results of Some Experiments on Pumping-Engines, with Reference to Cylinder Condensation. (With W. O. Hildreth.)

WILLIAM CHANNING CUSHING (M. A. Univ. of New Brunswick), St. John, N. B.  
On the Tensile Strength of Cement As affected by the Fineness of Grinding; and on the Change of Dimension of Cement during Induration. (With W. S. Thompson.)

SARAH LOUISE DAY (A. B., Vassar College), Boston, Mass.  
The Composition of Cotton-Seed Oil.

WALTER CLARK FISH, Taunton, Mass.  
A Commercial Efficiency Test of a Thompson-Houston Dynamo.

JOHN MANASSEH FOX, Portland, Me.  
The Inverse Electromotive Force of the Voltaic Arc.

JOSEPH BATES GAY, Boston, Mass.  
A Design for a College.

WALTER HOWARD GLEASON, Boston, Mass.  
The Boiling Points of Naphthaline, Benzophenone, and Benzol, Under Controlled Exhaustions,

WILLIAM SEYMOUR HADAWAY, JR., Plymouth, Mass.  
A Study of the Deviations Between the Mercurial and Air Thermometer.

WILLIAM OSGOOD HILDRETH, Gardiner, Me.  
The Results of Some Experiments on Pumping-Engines, with Reference to Cylinder Condensation. (With R. E. Curtis.)

JAMES CALVIN HOBART, Cincinnati, Ohio.  
Transmission of Power by Rope Gearing.

OREN SHAW HUSSEY, Nashua, N. H.  
An Experimental Determination of the Pressure on Lathe Tools. (With E. A. Jones.)

EDWARD ARCHIE JONES, Pittsfield, Mass.  
An Experimental Determination of the Pressure on Lathe Tools. (With O. S. Hussey.)

CHARLES BENJAMIN KENDALL, Manchester, N. H.  
The Action of Alizarine Assistant in Turkey-Red Dyeing.

WILLIAM DOWNING LIVERMORE, Charlestown, Mass.  
The Action of Dilute Nitric Acid on Substituted Aromatic Arnido Compounds.

PHILIP ALONZO MOSSMAN, Beverly, Mass.  
Smelting of Calumet and Hecla "Black Jack" for Black Copper.

SAMUEL PARSONS MULLIKEN, Newburyport, Mass.  
The Action of Nitrosulphuric Acid on Certain Tolnol Derivatives.

ARTHUR RICKER NICKELS, Cheryfield, Me.  
The Desilverization of Copper Matte by Crooke's Process.

GEORGE LINCOLN NORRIS, Melrose, Mass.  
The Smelting of Fine Ores.

OSCAR EUGENE NUTTER, Great Falls, N. H.  
A Comparison Between Double and Single Carding of Cotton, as practiced in the American and English Systems.

GEORGE WASHINGTON PATTERSON, JR., Westfield, N. Y.  
Experiments on the Blake Contact. (With H. J. Tucker.)

EDWIN RICHTER PEARSON, Portsmouth, N. H.  
A Study of the Efficiency of Incandescent Lamps. (With W. G. Whitmore.)

QUINTARD PETERS, Atlanta, Ga.  
A History of the Iron and Steel Tariffs from the Adoption of the Constitution to the Civil War, 1789-1860.

HERBERT APPLETON RICHARDSON, Boston, Mass.  
Linoleic Acid.

FRANZ HERMAN SCHWARZ, Boston, Mass.  
A Design for a Mine-Hoisting Plant.

HENRY DARRAH SEARS, Dubuque, Ia.  
Researches Relating to the Melting Platinum Standard of Light. (With G. Taintor.)

FRANK EDWARD SHEPARD, Dorchester, Mass.  
Experiments on the Steam Injector and Apparatus for the Determination of the Velocity of the Delivered Water. (With E. G. Thomas.)

CHARLES PORTER SMITH, Cambridge, Mass.  
Water-Meters. (With A. H. Twombly.)

JONAS WALDO SMITH, Lincoln, Mass.  
A Discussion of the Flow of Water Over Submerged Weirs.

HENRY SOUTHER, JR., South Boston, Mass.  
A Method of Treatment of a Rich Gold and Silver Ore.

HOLLON CURTIS SPAULDING, East Boston, Mass.  
A Design for an Oscillating Cylinder Marine Engine, with Original Valve Motion.

TIMOTHY WILSON SPRAGUE, Fitchburg, Mass.  
A Method of Treatment of a Leadville Carbonate Ore.

JAMES HUGH STANWOOD, Portland, Me.  
An Examination into the Economical Arrangement of the Kinzua Viaduct, together with a Design for a Bridge with Separate Piers. (With W. A. Whitney.)

HENRY FARRIS STODDARD, Plymouth, Mass.  
An Experimental Investigation of the Strength and Elasticity of Shafting, subjected to Combined Twisting and Bending.

GILES TAINTOR, Keene, N. H.  
Researches Relating to the Melting Platinum Standard of Light. (With H. D. Sears.)

EDWARD GALBRAITH THOMAS, Hingham Center, Mass.  
Experiments on the Steam Injector and Apparatus for the Determination of the Velocity of the Delivered Water. (With F. E. Shepard.)

FREDERICK THOMPSON, Washington, D. C.  
Location and Estimates for a Narrow Gauge Railway from Davis Mine to Charlemont, Mass. (With F. G. Burgess.)

WALTER SCOTT THOMPSON, Boston, Mass.  
Fineness and Change in Dimension of Cements. (With W. C. Cushing.)

GREENLEAF ROBINSON TUCKER, Boston, Mass.  
A Method for the Determination of Carbonic Acid in Air Adapted to Public Institutions, and a New Method for the Bactereoscopic Examination of Air.

HARRY JUDSON TUCKER, Providence, R. I.  
Experiments on the Blake Contact. (With G. W. Patterson, Jr.)

ALEXANDER HAMILTON TWOMBLEY, Boston, Mass.  
Water-Meters. (With C. P. Smith.)

RALPH VOSE, Hyde Park, Mass.  
The Effect of Projecting Teeth in Armatures.

WALTER GRAY WHITMORE, Plymouth, Mass.  
A Study of the Efficiency of Incandescent Lamps.  
(With E. R. Pearson.)

GRANGER WHITNEY, Beverly, Mass.  
Concentration and Burning of Fine Pyrites from  
Capelton, P. Q.

WILLIAM AUGUSTUS WHITNEY, Boston, Mass.  
An Examination into the Economical Arrangement of  
the Kinzua Viaduct, together with a Design for a  
Bridge with Separate Piers. (With J. H. Stan-  
wood.)

HERBERT AUGUSTUS WILCOX, Somerville, Mass.  
Some Experiments on the Treatment of an Argentifer-  
ous Blende.

SIDNEY WILLIAMS, Boston, Mass.  
The Location of a Railroad from Medford to Stoneham,  
Mass., to connect with the Boston and Maine R. R.  
or the Boston and Lowell R. R.

**A Summer School in Geodesy, Topography,  
and Geology.**

THE corporation of the Institute have authorized the establishment, in connection with the Civil Engineering Department, of a summer school in Geodesy, Topography, and Geology. The school will be opened in the summer of 1888, and will consist of field operations, with office work and lectures, carried on under the regular instructors of the Institute, covering a period of five or six weeks. The school will be open to all Civil Engineering students, who have completed the third year, also to students from other departments, and to outsiders who show themselves properly qualified; and it will be a required part of the option in Geodesy, Topography, and Geology, which was organized a year ago in connection with Course I.

This school will supply a want which has for a long time been felt at the Institute, and will afford students just the training they require for work on intended Topographical and Geological surveys, at the same time affording them a pleasant outing coupled with valuable and interesting scientific work.



John H. Towne has been re-elected TECH Director from '90.

The Society of '88 will hold its annual dinner Saturday night.

Professor Richards will sail for Europe soon after the examinations.

The class of '88 has elected H. J. Horn and Richard Devens as TECH Directors for the ensuing year.

The Class Day invitations are of a very handsome design, by John A. Lowell & Co.

The Harvards play their first championship game in Cambridge, with Princeton, Saturday afternoon.

The small boy employed in the office makes himself a nuisance around the halls. The mucker must go.

Ten Exeter Academy men have made application to take the entrance examinations to be held in Exeter next month.

Former members of '87 should apply to H. D. Sears for tickets to the Class Day afternoon exercises and evening reception.

The old joke of putting the sign "No passing through" across the doorway has been worked again. "Strike the gong, Maria."

The *Quarterly* is being received most favorably on all sides. Over seven hundred copies of the first number have been distributed.

The Hammer and Tongs Club gives its last dinner of the year at Young's, Saturday evening. The club has been photographed by Hastings:

The Society of '87 holds its final meeting at Parker's, to-morrow evening. A large number of past and present members are expected to be present.

Ray, corner of West and Washington Streets, has taken the place of B. Morris Hooper, as the co-operative dealer in gentlemen's furnishing goods.

On designs for the restoration of the Erechtheum, first mentions were given to Edwards, Harding, and Hooker, and second mentions to Pietsch, Calkins, Crane, and Dawson.

The Freshman nine plays its final game Saturday, with the Harvard Freshmen. A victory then will be a fitting culmination of their successful season.

It has been proposed to publish a monthly paper of work done in the Architectural Department, next year. It would be made up wholly of drawings and designs, with descriptions.

The entrance examinations will be held Thursday, June 2d, from 9 A. M. to 5 P. M., with an intermission from 1 to 2 P. M., and Friday, June 3d, from 9 A. M. to 4 P. M., with the same intermission.

Owing to members not paying up spring assessments the Tennis Association has been obliged to borrow money from the Athletic Association until next fall. Members should not neglect to pay their dues.

Many complaints are made about the difficulty experienced in getting mail out of the cage. One man received an invitation for an Easter dinner six weeks after Easter had passed, and other similar delays have been reported.

The Architectural Society sat down to its annual dinner May 14th, at Young's, with Professor Letang as a guest. The evening passed pleasantly, and Professor Letang delighted all with his happy speech.

The board of TECH Directors for the ensuing year has organized by electing H. J. Horn, '88, President; John H. Towne, '90, Secretary, and F. W. Hobbs, '89, Treasurer. The board

elected Russell Robb, '88, advertising agent for the next year.

The Quarterly Board has organized for next year, with H. F. Bigelow, '88, Editor-in-chief; W. E. Mott, '88, Secretary; G. E. Claflin, '88, Treasurer; and A. T. Bradlee, '88, Business Manager. Before the next issue several new editors will be elected from '88 and '89.

The question of base-ball supremacy between '89 and '90, will not be settled this year. '90 would not play unless '89 gave up Clement '89, and '90 were allowed to play two men who do not attend the Institute. This is unfortunate, as there is a general desire to see the game played.

The graduation exercises of the Class of '87 will be held in Huntington Hall, Tuesday, May 31st, at three o'clock P. M. Immediately after the exercises, drawings and other work of the students will be on exhibition in the buildings. In the evening the Alumni Association will entertain the graduating class. Neat invitations to the graduation exercises have been issued by the Corporation and Faculty.

We have recently received several communications which we have been unable to print, through lack of space, as they were all received after the matter for the last two numbers had been decided upon. We trust that no one will be discouraged by the non-appearance of their communications. The columns of THE TECH should be free to all. We would request, however, that the matter be made as short and to the point as possible.

"In the legislature the committee on education has reported a resolve appropriating \$100,000 for the Institute of Technology; \$50,000 on December 1, 1887, and \$50,000 on December 1, 1888. In consideration of this grant the Institute is required to maintain twenty free scholarships, and it is provided that the Institute shall secure, prior to the first payment above authorized, a further sum of \$100,000 in addition to the funds now held by it."—*Boston Herald*.

The annual meeting of the Athletic Club was held May 13th. The secretary read a report showing the club held three successful athletic

meetings during the year, and that four Technology records had been broken. The Treasurer's report showed the club to be in a good financial condition, with a balance of over \$200 left in the treasury. Officers for the ensuing year were elected as follows: President, H. G. Gross, '88; Vice-President, Russell Robb, '88; Secretary, Nathan Durfee, '89, and Treasurer, Lyman Farwell, '88. The '88 members elected Richard Devens director from that class.

The final arrangements for Class Day have been made, and the day promises to make a fitting end to '87's enterprising career at the Institute. On Monday, May 30, at 2 p. m., the class exercises will be held in Huntington Hall, and will consist of oration, history, prophecy, ode, statistics, poem and music. The bareness of the platform will be covered by palms and other plants, and the hall promises to make a better appearance than it has ever made before. In the evening at the Vendome, there will be a reception from eight to ten, and dancing from ten. Admission to the afternoon exercises and evening reception will be by separate tickets; members of the class will wear bows of the class colors in their button-holes, which will distinguish them through the day. The officers of the day are: First marshal, Frank E. Shepard; second marshal, H. D. Sears; aids, G. O. Draper and T. W. Sprague.

#### At the Game.

We were watching the game from the grand-stand,

The Crimson versus the Blue;

Blue were her fluttering ribbons,

Her eyes were the same loyal hue.

On her score-card her dainty inscriptions

Kept tally detailed and precise;

By this exhibition of learning

She "scored" her first point in my eyes.

Said I, "Your eyes are a battery

In blue—they such havoc commit."

At the swift downward "drop" of her eyelids

I knew I had "tallied a hit."

Underneath the long fringe of her lashes

I "gained my first" glance at her heart,—

But in "stealing my second" felt "put out,"

By her trying my purpose to thwart.

That glance of hers though was a "liner,"

To my heart she had made a "home run;"

Though vanquished I yet was exultant—

By her "battery-work" she had won.

—Record.

#### THE COLLEGE WORLD.

YALE.—At the spring sports of the Athletic Association, remarkably good work were done. The Yale records in the running broad jump, the pole vault, and putting the shot, were broken. A. B. Coxe, '87, threw the hammer 101 feet, 1½ inches, breaking the college record, and W. Harman, '90, broke the inter-collegiate record for the mile run—time 4 min., 37 sec. The record has stood at 4 min. 37½ sec. for eight years.—There are thirty Yale graduates on the Sandwich Islands, some of them occupying important positions under the Government.—One of the instructors, whose room is opposite Lawrence, says the present Sophomore Class is the noisiest he has ever known.—Irving Fisher, '88, has invented an arrangement whereby the strokes of oarsmen may be registered. A pencil movement faithfully reproduces all peculiarities of the stroke.

Princeton has an Eating Club, composed entirely of men who are intending to become missionaries.

The Harvard faculty will not permit Harvard to remain in the Foot-Ball Association unless the roughness of the game is stopped.—*Ex.*

A movement is on hand to arrange a tournament in which Wellesley, Wesleyan, Amherst, and Smith will compete.—*Ex.*

Oberlin has 110 students who are willing to become foreign missionaries, Amherst 25, Williams 19, Harvard 9, Cornell 35, Princeton 48.

Dr. White, professor of athletics in the University of Pennsylvania, will contribute to *Lippincott's Magazine* for June, an article giving "A Physician's View of Exercise and Athletics."

Gravel tennis-courts are to be made at Tufts College soon, the expense to be divided between the college authorities and the students.

*Le Temps*, in a recent article on French, English, and American education, takes Oxford as the typical English, and Yale as the typical American college.

CORNELL has 829 students, divided as follows: resident graduates, 4; seniors, 97; juniors, 145;

sophomores, 178; freshmen, 323; special students, 45. There are 61 officers of instruction and administration.

Jonas Clark, the founder of the new university at Worcester, favors the plans of the German Universities as models for his new institution. He recommends especial attention to Cornell and Johns Hopkins, and promises more financial aid. The University, it is expected, will be ready for occupancy the first of October, 1888.

EDINBURGH UNIVERSITY students are erecting, at a cost of \$75,000, a Students' Union, after the plan of the Unions at the English Universities. It is to contain a library, gymnasium, reading, dining, and club-rooms.

Every student who applies for a scholarship at Dartmouth must sign a pledge not to use tobacco in any form while receiving aid from the college.

The faculty of Oberlin place knee-breeches in the same category as low necked dresses and short sleeves, and have forbidden the students to wear them.—*Ex.*

The prize essay on Social Life at Cornell will appear in the June number of *Lippincott's Magazine*.

IN GENERAL.—Fifty men have been dropped at Cornell this year.—Harvard conferred the first LL.D. on George Washington in 1776.—*Ex.*—The trustees of Amherst have recommended that the number of students be hereafter limited to 300.—This is Duffield's ninth season on the Princeton nine.—*Ex.*—W. B. Page, of the University of Penn., has broken his running high jump record, having jumped 6 feet 1 $\frac{1}{4}$  inches.—Hutchinson, the champion sprinter of the world, was recently beaten in Australia by an untrained negro.—The Worcester Technical Institute was recently endowed with \$100,000 to be used exclusively in improving the laboratories,—The Exeter gymnasium instructor plays in the nine of that school.—The average age of the Trinity freshmen is about twenty-one.—A new book of Cornell songs has just been issued.



"WANTED: A SITUATION."

It is really most distressing  
That, although my needs are pressing,  
I cannot make the money that inferior fellows can;  
Nor find an occupation,  
In this Philistinish nation,  
Congenial to a college-bred and cultivated man.

My talents — they are many —  
Do not bring me in a penny,  
While the unenlightened vulgar go on heaping up their  
gains:  
I can do so much that they can't,  
But all "situations vacant"  
Are reserved, as I discover, for the men of vacant brains.

I was noted when at college  
For a very special knowledge  
Of history, antiquities, and numismatic lore —  
But in Coinage early dated,  
My interest has abated;  
Some interest on our modern coins would benefit me more.

In the "ologies" and "isms,"  
In all theologic schisms,  
In the speculative systems of both old and modern thought,  
I am versed, I may say, deeply,  
But my "views" I'd part with cheaply,  
Could I ascertain the market where that kind of thing is  
bought.

I am trying legal practice,  
But the melancholy fact is  
That, although I passed with honors when I took my law  
degree,  
And did credit to my tutors,  
I do not suit the suitors,  
And my knowledge of fee-simple does not bring a simple  
fee.

The thought I sometimes harbor,  
That to be a chatty barber,  
Conductor on a surface car, or driver of a van —  
To get a place as waiter,  
Or run an elevator —  
Are about the only chances for a cultivated man.

—*Life.*

No, Charles, the German street-band may  
not be said to be a species of gutta-percha.



SCENE:—A CORRIDOR IN THE WAYBACK HOTEL.

*Landlord.*—THAT'S YOUR ROOM.

*Guest.*—CALL ME TO-MORROW MORNING AT HALF-PAST SEVEN. I'LL LEAVE MY BOOTS OUTSIDE THE DOOR TO—

*Landlord.*—GOSH, YES—GO AHEAD; NOBODY'LL TECH 'EM!

THE REASON WHY.

On a blossom-strewn bank two lovers sat,  
And gentle zephyrs murmuring low,  
By contrast were fortissimo,  
So very softly did they chat.  
  
And now and then her laughter mellow,  
Would ripple clear at some merry jest;  
While she pelts him with blossoms with playful zest  
He vows revenge, the audacious fellow.

Revenge he got; 'twas sweet, don't you think?  
The maiden blushed as maidens should,  
Her handkerchief snatched as tho' she would  
Erase the kiss from her cheek's soft pink.

"Why rub it off?" he asked in fun;  
She pouted a bit and tossed her head,  
Then with a smile she coyly said,  
"Perhaps to make room for another one."

—Record.

FOR LIFE.

We sat upon a rock,  
Down on the sand,  
And, in my most dramatic fashion,  
I told her of my ardent passion,  
And seized her hand;  
Entreated her to be my wife,—  
My dear companion, ever mine  
For life.

She listened to my words  
With thoughtful mien;  
Then murmured softly, "How romantic!  
An offer by the broad Atlantic,  
A truly booky scene,—  
'His dear companion, loving wife!'—  
(I really think I'll write it out)  
For Life!"

—Advocate.

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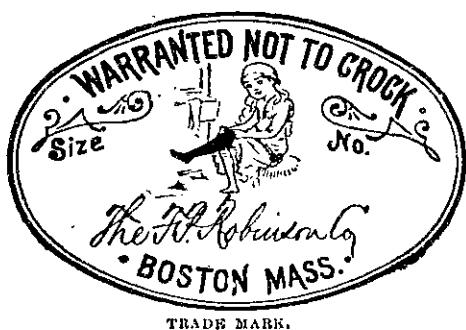
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This excursion was made last summer by a large number of people, as a substitute for a trans-Atlantic trip. It is, in fact, an ocean voyage, deprived of its monotony by frequent stops at interesting places.

As all the arrangements have been made, it will only be necessary for those desiring to go, to give their names to the ticket agent at the wharf, when they purchase their tickets, and the staterooms which have been reserved will be assigned to them. For further particulars see H. C. Spaulding, '87; G. C. Dempsey, '88; G. M. Basford, '89; or W. Z. Ripley, '90.

### Vale!!

THE ADVERTISING DEPARTMENT now makes its little bow, thanking its patrons for favors past, present, and to come, and bespeaking a continuance of the same for next year's management. Our next issue will be to advertisers only, and will consist of a single sheet, with a blank for our signature, which will be furnished on reasonable terms. We hope to find you in when we call.

D. TOY,

\* TAILOR \*

-11-

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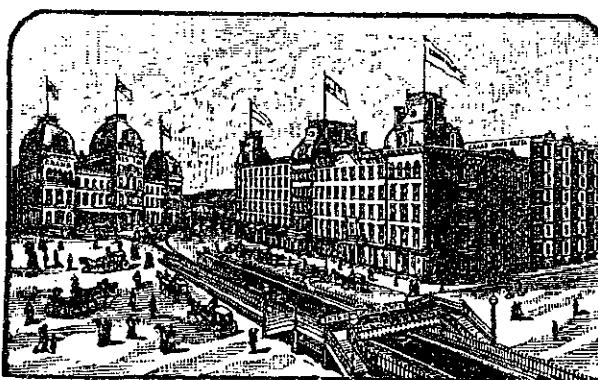
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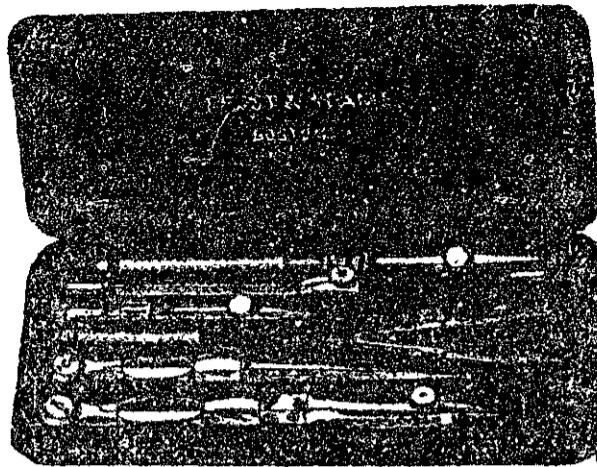
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